

Cellular and Molecular Neurobiology—Volume 2, 1982

Cellular and Molecular Neurobiology publishes original research articles concerned with the analysis of neuronal and brain function at the cellular and subcellular levels. The journal welcomes articles utilizing anatomic, physiologic, pharmacologic, or biochemical approaches to the study of neuronal function and oriented to the analysis of elementary mechanisms. Studies of isolated mammalian tissues, and intact animals, with investigation aimed at the molecular mechanisms or neuronal responses at the level of single cells, are accepted for publication. The journal also presents studies of the effects of neurons on other organ systems, such as analysis of the electrical or biochemical response to neurotransmitters or hormones on smooth muscle or gland cells.

Figure 1: Pyramidal cell neuron filled with horseradish peroxidase from the cortex of cat. Courtesy of Dr. Charles D. Woody.

EDITOR

David O. Carpenter, New York State Department of Health, Albany, New York

EDITORIAL ADVISORS

Arvid Axelrod, National Institutes of Mental Health, Bethesda, Maryland

Marshall Nirenberg, National Institutes of Health, Bethesda, Maryland

EDITORIAL BOARD

John R. Adams, State University of New York, Stony Brook, New York

Andersen, Universitetet i Oslo, Oslo, Norway

Argo Arechiga, Instituto Politecnico Nacional, Mexico City, Mexico

David J. Brinley, Jr., National Institutes of Health, Bethesda, Maryland

David A. Brown, University of London School of Pharmacy, London, England

John M. H. Bush, School of Veterinary Science, Bristol, England

Edward Catapane, City University of New York, Brooklyn, New York

William Catterall, University of Washington, Seattle, Washington

John Connor, Bell Laboratories, Murray Hill, New Jersey

John W. Cotman, University of California, Irvine, California

John W. Daly, National Institutes of Health, Bethesda, Maryland

Geoffrey O. Eckert, University of California at Los Angeles, Los Angeles, California

Geoffrey W. Gage, University of New South Wales, New South Wales, Australia

Donald Gainer, National Institutes of Health, Bethesda, Maryland

Michael J. Greenberg, The Florida State University, Tallahassee, Florida

David Greene, New York University School of Medicine, New York, New York

Ernst Haas, Neurochirurgische Universitätsklinik, Zurich, Switzerland

James Haley, Albert Einstein College of Medicine, Bronx, New York

James Haley, The Rockefeller University, New York, New York

Richard Hammerschlag, City of Hope National Medical Center, Duarte, California

Enzo Hiriipi, Hungarian Academy of Sciences, Tihany, Hungary

William Hobson, Harvard Medical School, Boston, Massachusetts

Michael Johnston, Baylor College of Medicine, Houston, Texas

John Keibarian, National Institutes of Health, Bethesda, Maryland

Yuri Khodorov, Vishnevsky Surgery Institute, Moscow, USSR

Michel Lazdunski, Université de Nice, Nice, France

Yrjö H. Lagerspetz, University of Turku, Turku, Finland

Yurii Magazanik, Academy of Sciences of the USSR, Leningrad, USSR

Donald A. McAfee, City of Hope National Medical Center, Duarte, California

Herbert A. Miles, National Institutes of Health, Bethesda, Maryland

William Osborne, University of Oxford, Oxford, England

Harold Pasternak, Memorial Sloan-Kettering Cancer Center, New York, New York

Donald B. Pert, National Institute of Mental Health, Bethesda, Maryland

Yehoniah Rahamimoff, Hebrew University, Hadassah Medical School, Jerusalem, Israel

Thomas S. Reese, National Institutes of Health, Bethesda, Maryland

Armando Rudomin, Instituto Politecnico Nacional, Mexico City, Mexico

Manuel M. Saavedra, National Institute of Mental Health, Bethesda, Maryland

John L. Sachs, State University of New York, Buffalo, New York

Lev N. Sakharov, Academy of Sciences of the USSR, Moscow, USSR

John M. Salzberg, University of Pennsylvania School of Dental Medicine, Philadelphia, Pennsylvania

George B. Stefano, City University of New York, Brooklyn, New York

Slavoljub Tauc, Centre National de la Recherche Scientifique, Paris, France

Yoshiichi Terashima, Tokyo Medical and Dental University, Tokyo, Japan

Cellular and Molecular Neurobiology is published quarterly by Plenum Publishing Corporation, 233 Spring Street, New York, N. Y. 10013. Subscription orders should be sent to the publisher. *Cellular and Molecular Neurobiology* is abstracted or indexed in Beck Medical Information, Biological Abstracts, Chemical Abstracts, Current Contents, and Excerpta Medica. © 1982 Plenum Publishing Corporation. *Cellular and Molecular Neurobiology* participates in the program of Copyright Clearance Center, Inc., the appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the stated per-copy fee through Copyright Clearance Center, Inc. for all copying that is explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. It does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts.

Subscription rates:

Volume 2, 1982 (4 issues) \$50.00 per volume (outside the U.S., \$57.00). Price for individual subscribers certifying that the journal is for their personal use, \$25.00 (outside the U.S., \$30.00).

Volume 3, 1983 (4 issues) \$50 per volume (outside the U.S., \$57.00). Price for individual certifying that the journal is for their personal use, \$25.00 (outside the U.S., \$30.00).

Printed in USA.

Cellular and Molecular Neurobiology is published quarterly by Plenum Publishing Corporation, 233 Spring Street, New York, N. Y. 10013. Subscription orders should be addressed to the publisher. *Cellular and Molecular Neurobiology* is abstracted or indexed in Beck Medical Information, Biological Abstracts, Chemical Abstracts, Current Contents, and Excerpta Medica. © 1982 Plenum Publishing Corporation. *Cellular and Molecular Neurobiology* participates in the program of Copyright Clearance Center, Inc. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the stated per-copy fee through Copyright Clearance Center, Inc. for all copying not explicitly permitted by Sections 107 or 108 of the U.S. Copyright Law. It does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts.

Cellular and Molecular Neurobiology

Vol. 2, No. 1

March 1982

CONTENTS

ARTICLES

- Twenty-Four-Hour Rhythm and Effects of Stress and Adrenomedullectomy on
Rat Pineal Dopamine, Noradrenaline, and Adrenaline Concentra-
tions 1
J. M. Saavedra, N. Barden, C. Chevillard, and J. Fernandez-Pardal
- Localization and Role of Carotenoids in Molluscan Neurons 11
V. V. Petrunyaka
- Angiotensin Excites Hippocampal Pyramidal Cells by Two Mechanisms 21
H. L. Haas, D. Felix, and M. D. Davis
- A Mechanism for the Control of Low-Frequency Repetitive Firing 33
L. Donald Partridge
- Identification of Insulin Receptor-Containing Cells in Primary Cultures of Rat
Brain 47
*Mohan K. Raizada, John F. Stamler, James T. Quinlan, Steve Landas,
and M. Ian Phillips*

SHORT COMMUNICATIONS

- Blockade of Acetylcholine-Induced Inward Currents in *Aplysia* Neurons by
Strychnine and Desipramine: Effect of Membrane Potential 53
N. T. Slater and D. O. Carpenter
- Components of Desensitization at the Frog Neuromuscular Junction and the
Effect of Metabolic Inhibitors 59
Thomas J. Chesnut
- Dopamine Stimulates Production of Cyclic AMP by the Salivary Gland of the
Cockroach, *Nauphoeta cinerea* 65
C. W. Grewe and J. W. Keabian
-

Cellular and Molecular Neurobiology

Vol. 2, No. 2

June 1982

CONTENTS

ARTICLES

- Analogue of the Conditioned Reflex of *Helix pomatia* 71
M. B. Shtark, V. P. Tretyakov, B. N. Deriy, T. A. Zapara
- Increased Synthesis of Cyclic AMP and Short-Term Plastic Changes in the Segmental Ganglia of the Leech *Hirudo medicinalis* 81
Carla Biondi, Francesco Belardetti, Marcello Brunelli, Alice Portolan, and Agostino Trevisani
- Naloxazone, a Novel Opiate Antagonist: Irreversible Blockade of Rat Brain Opiate Receptors *in Vitro* 93
Steven R. Childers and Gavril W. Pasternak
- Differential Distribution of Gangliosides in Nerve-Cell Cultures 105
Wilfried Dimpfel
- Conformational Malleability of Opiate Receptors: Sulfhydryl Modification Alters Ion-Induced μ/δ -Ligand Selectivity Shifts in Rat Striatal Sections 115
Wayne D. Bowen and Candace B. Pert
- Cyclic Nucleotide Metabolism in the Sympathetic Ganglion 129
Clark A. Briggs, Gary J. Whiting, Marjorie A. Ariano, and Donald A. McAfee
- Cellular Localization of Cyclic Nucleotide Changes in Rat Superior Cervical Ganglion 143
Marjorie A. Ariano, Clark A. Briggs, and Donald A. McAfee
- ### SHORT COMMUNICATION
- An Antiserum to Cholinergic Synaptic Vesicles from *Torpedo* Recognizes Nerve Terminals in Retinas from a Variety of Species 157
N. N. Osborne, R. Beale, D. Nicholas, H. Stadler, J. H. Walker, R. T. Jones, and V. P. Whittaker
- ANNOUNCEMENT 165
-

CONTENTS

REVIEW AND COMMENTARY

- Comparative Aspects of Opioid-Dopamine Interaction 167
George B. Stefano

ARTICLES

- Release of Norepinephrine from Brain Vesicular Preparations: Effects of an Adenylate Cyclase Activator, Forskolin, and a Phosphodiesterase Inhibitor 179
Richard P. Ebstein, Kenneth Seamon, Cyrus R. Creveling, and John W. Daly

- Release of Norepinephrine and Dopamine from Brain Vesicular Preparations: Effects of Adenosine Analogues 193
Richard P. Ebstein and John W. Daly

- Release of Norepinephrine and Dopamine from Brain Vesicular Preparations: Effects of Calcium Antagonists 205
Richard P. Ebstein and John W. Daly

- Effects of Alcohols upon Pacemaker Activity in Neurons of *Aplysia californica* 215
Lewis H. Silver and Steven N. Treistman

- 2',3'-Cyclic Nucleotide 3'-Phosphodiesterase (CNPase) Activity in Cultured Nerve Cell Lines from Central Nervous System: Comparison of Proliferating and Resting Growth States and Cell Cycle-Dependent Activity Changes 227
Hans Werner Müller and Wilfried Seifert

SHORT COMMUNICATIONS

- Activity and Immunocytochemical Localization of 2',3'-Cyclic Nucleotide 3'-Phosphodiesterase (CNPase) in Primary Nerve Cell Cultures from Rat Brain 241
Hans Werner Müller and Wilfried Seifert

- Aging: Decline of Dopamine-Stimulated Adenylate Cyclase Activity in *Mytilus edulis* (Bivalvia) 249
George B. Stefano, Anna Stanec, and Edward J. Catapane

- Rapid Recovery of Nicotinic Receptor-Mediated Sodium-22 Influx Following Withdrawal from Acute or Chronic Cholinergic Stimulation 255
Robert G. Siman and William L. Klein

- ANNOUNCEMENTS 263
-

Cellular and Molecular Neurobiology

Vol. 2, No. 4

December 1982

CONTENTS

ARTICLES

- Immunocytochemical Localization of S-100 Protein Binding Sites in Synaptosomal Fractions and Subfractions 265
Domenico Cocchia, Francesco Pansera, Angela Palumbo, and Rosario Donato
- Alterations in Spontaneous Transmitter Release by Divalent Cations After Treatment of the Neuromuscular Junction with β -Bungarotoxin 277
Leona M. Masukawa and David R. Livengood
- Dopamine Produces Muscle Contractions and Modulates Motoneuron-Induced Contractions in *Aplysia* Gill 291
John W. Swann, C. Nelson Sinback, Martha G. Pierson, and David O. Carpenter
- Motoneurons Which May Utilize Dopamine as Their Neurotransmitter 309
John W. Swann, C. Nelson Sinback, Procerfina R. Keabian, and David O. Carpenter
- Dopaminergic Innervation of *Aplysia* Gill Muscle 325
John W. Swann, Martha G. Pierson, and Annica Dahlström
- Visualization and Solubilization of Rat Brain Opiate Receptors with a " κ " Ligand Selectivity Pattern 333
Remi Quirion, Wayne Bowen, Miles Herkenham, and Candace B. Pert
- SHORT COMMUNICATION
- Purification of Opioid Peptides from Molluscan Ganglia 347
George B. Stefano and Michael Leung
- AUTHOR INDEX TO VOLUME 2 353
- SUBJECT INDEX TO VOLUME 2 355
-